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Air Pollution Control in Minnesota

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I. INTRODUCTION

The president of a St. Paul based industry, in rebutting allegations of air pollution at a Montana pulp mill, asserted that the Lewis and Clark expedition was once trapped by fog in the vicinity and thus, "the problem is not a new one."[1] He is certainly correct in his assertion—the problem is not a new one. It is doubtful, however, that the fog encountered by Lewis and Clark contained any great amounts of hydrogen sulfide or sulfur dioxide. It would take a great number of Indian campfires to equal one pulp mill in pollutant output. Perhaps the people of Montana—"Big Sky Country"—still gaze at that vast expanse of blue, not quite comprehending how it could happen to New York or Los Angeles. Yet "it" has happened and not only to the major industrial areas of this country.

A. Effects of Air Pollution

The more than 130 million tons of pollutants annually emitted into the nation's atmosphere[2] have a profound effect on the health, economy and happiness of our citizens. While the resultant deaths and serious illnesses from the disasters in Belgium (1930),[3] Donora, Pennsylvania (1948),[4] New York City (1953 and 1963)[5] and London (1952 and 1964)[6] are the most obvious examples of the harm caused by air pollution, the long-term effects on health should not be overlooked. Air pollutants may aggravate respiratory diseases such as asthma, bronchitis, lung cancer and emphysema, as well as cause extensive eye and nose

1. Minneapolis Tribune, Feb. 28, 1969, at 4, col. 2.
2. *See* 1 CCH Clean Air News, No. 45, at 2 (Nov. 28, 1967).
3. *See* Firket, *The Cause of the Symptoms Found in the Meuse Valley During the Fog of December 1930*, 11 Bull. Royal Acad. Med. 683 (Belgium 1931).
4. *See* Schrenk, et. al., *Air Pollution in Donora, Pa.*, Pub. Health Bull., (1940).
5. *See* Cassel, et. al., *Health and the Urban Environment. Air Pollution and Family Illness: III. Two Acute Air Pollution Episodes in New York City: Health Effects*, 10 Arch. Environ. Health, 367-69 (Feb. 1965).
6. *See* Scott, et al., *Mortality in London in the Winter of 1962-63*, III Med. Officer 327-30 (June 1964); Wilkins, *Air Pollution and the London Fog of December, 1952*, 47 J. Royal Sanit. Inst., 1-15 (1954).

irritation.[7] In addition, there is a growing trend to regard air pollution as a cause of lung cancer,[8] emphysema[9] and other respiratory diseases.[10]

It is generally agreed that the nation's total economic waste caused by air pollution is in excess of 11 billion dollars.[11] This loss consists of corrosion of machinery and structures,[12] crop and animal damage,[13] and expenses incurred in cleaning polluted surfaces.[14] Apart from the direct economic loss, the adverse effects on health result in increased absences from work, lower production rates and less overall efficiency.

Some of the effects of air pollution cannot be measured, either in terms of money or health. Mountains obscured by smog, soot drifting from a grey sky, and brown clouds on the horizon are all familiar sights to residents of highly polluted urban areas. The constant barrage of pollutants is rapidly eliminating much of our natural environment.

B. Causes of Air Pollution

The two major sources of air pollution in the United States are the automobile, which contributes approximately 60 percent of the total amount,[15] and industry, particularly those industries which burn large amounts of coal and fuel oil.[16] These two factors combine to create the greatest incidence of air pollution in in the typical urban area, such as Minneapolis-St. Paul. While smaller cities and rural areas may have isolated sources of air pollution, the absence of concentrated automobile traffic reduces much of the problem.

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7. 1 CCH Clean Air News, No. 26, at 6 (July 18, 1967); *The Air We Breath—Recovery in Tort Because of Impurities in It*, 7 Current Med. for Attorneys, 24, No. 27 at 33 (1960).

8. Kotin and Falk, *Atmospheric Factors in Pathogenesis of Lung Cancer*, 7 Advances in Cancer Research 475 (1963).

9. 1 CCH Clean Air News, No. 20, at 4 (June 7, 1967).

10. *See* note 7 *supra*.

11. *The Polluted Air We Breathe*, Econ. Rev. (Feb. 1964); *Air Quality Criteria for Sulfur Oxides Set by HEW*, 1 Environ. Sci. & Technology 282 (1967).

12. Metal and other surface erosion is mainly caused by sulfur-bearing particles. 1 Environ. Sci. & Technology, *supra* note 11, at 284.

13. Agriculture losses are estimated at $500 million annually. 1 CCH Clean Air News, No. 33, at 1 (Sept. 6, 1967).

14. *See* 1 Environ. Sci. & Technology, *supra* note 11, at 284.

15. *Air Pollution and the Ubiquitous Auto*, 1 Environ. Sci. & Technology 878 (1967); *Electric Vehicles—Revival of a 50-year Old Memory*, 1 Environ. Sci. & Technology 192 (1967).

16. *Congress Takes a Hard Line on Air Pollution*, 1 Environ. Sci. & Technology 119 (1967).

In addition to the air pollution sources, the topography and meteorology of an area have a great effect on the extent of any air pollution problem. Temperature inversions, wherein temperature increases rather than decreases with elevation, and low wind velocity prevent the vertical and horizontal "mixing" of the atmosphere, thus heightening the visible effects of air pollution. Smog, which is caused by the photochemical reaction of sunlight on hydrocarbons and oxides of nitrogen, is at its highest level during these periods of low atmospheric mix.

C. Methods of Controlling Air Pollution

Legal remedies against air polluters were available at least as early as the thirteenth century when the burning of sea coal was punishable by death in England.[17] A citizen bothered by offensive odors was able to remove a neighbor's pig sty as early as 1610,[18] and in 1661 an Englishman proposed to move all industry to one side of London and plant aromatic trees and flowers in the middle of the city.[19]

Private nuisance law and municipal ordinances dominated the early control measures. Not until the late 1940's, with the passage of the California Air Pollution Control Act,[20] was any pervasive state-wide legislation passed to deal with air pollution. Federal legislation is largely embodied in three acts, "An Act to Provide Research and Technical Assistance Relating to Air Pollution Control" passed in 1955,[21] the Clean Air Act of 1963[22] and the Air Quality Act of 1967.[23] The central purpose of all federal legislation to date has been not to dominate the field itself, but to facilitate the development of regional, state and local agencies for regulating air pollution. Prior to 1967, Minnesota's only legislation concerning air pollution merely empowered the state board of health to adopt protective standards.[24] In 1967, an act was passed creating a pollution control agency and em-

17. Kennedy & Porter, *Air Pollution: Its Control and Abatement*, 8 Vand. L. Rev. 854 (1955).
18. William Alred's Case, 77 Eng. Rep. 816 (K.B. 1610).
19. *See* Kennedy & Porter, *supra* note 17, at 854.
20. Cal. Health & Safety Code §§ 24198-341 (West 1967).
21. 69 Stat. 322, *as amended*, 81 Stat. 485 (1967).
22. 42 U.S.C. § 1857 (1964).
23. 81 Stat. 485 (1967), *codified in*, 42 U.S.C. §§ 1857-571 (Supp. IV, 1969) [hereinafter cited as Air Quality Act]. The act is in form an amendment to the Clean Air Act but in operative effect it is a replacement.
24. Minn. Stat. § 144.12(14) (1967).

powering it to regulate air pollution in accord with federal standards.[25]

Minnesota and the Minneapolis-St. Paul metropolitan area enjoy a "clean" reputation[26] resulting from fortunate weather and topographical conditions, a lack of undue concentration of heavy industry and fairly moderate automobile traffic. However, Minnesota has not had an early start in controlling air pollution, and the future of this reputation will therefore depend on the future effectiveness of dealing with air pollution problems. The purpose of this Note is to explore the future of air pollution control in Minnesota, both under pre-1967 capabilities and under the combined federal-state laws of that year.

II. THE ROLE OF PRIVATE NUISANCE LAW IN ABATING AIR POLLUTION

A. Introduction

Nuisance consists of interference with the use and enjoyment of land rather than with the possession thereof. The latter injury is trespass and entails strict liability, while the former generally requires proof of special damage to be actionable.[28] In the words of Dean Prosser, the field of nuisance is an "impenetrable jungle" which has meant "all things to all men" and has been "applied indiscriminately to everything from an alarming advertisement to a cockroach baked in a pie."[27]

Most of the confusion in the field of nuisance law stems from the failure to adequately distinguish its component elements—private and public nuisance. Private nuisance is a civil wrong, a tort based on interference with the use and enjoyment of land, while a public nuisance is criminal in nature and may consist of a wide variety of acts or omissions which interfere with the rights of the public as a whole. A public nuisance does not necessarily involve the use or enjoyment of land. Dean Prosser contends that the two fields are almost wholly unrelated and that much of the confusion would have been alleviated had they been given distinct labels.[29]

A nuisance may be private and public concurrently—pri-

25. Minn. Stat. §§ 116.01-.09 (1967).
26. Minneapolis-St. Paul ranks 32d in a list of 65 large cities with air pollution problems. Minneapolis Tribune, May 22, 1969 at 2, col. 7.
27. W. Prosser, Law of Torts § 87, at 592 (3rd ed. 1964).
28. Restatement (Second) of Torts § 158 (1965).
29. W. Prosser, *supra* note 27, § 87.

vate in its effects on particular individuals and public in its general effects. The former is redressed by a civil action, the latter by prosecution in the name of the state.[30] Proof of a public nuisance will not generally suffice to support a judgment in a civil action,[31] but will suffice where special damage, not common to the public, is shown.[32]

B. Absolute Liability and the Restatement

The determination of liability for private nuisance has generally followed one of two rules. The first is the absolute nuisance rule[33] which eliminates negligence as a requirement and instead looks to defendant's intention to bring about the undesirable conditions. It is not necessary that defendant intend the effects of the conditions, but only the conditions themselves.[34] In some jurisdictions, the absolute nuisance rule is intertwined with the concept of nuisance per se—activity deemed to be a nuisance without regard to surrounding circumstances or reasonableness of conduct.[35] The result generally is that negligence must be proven in the absence of a nuisance per se.[36] Minnesota has specifically rejected such an approach.[37]

30. Hill v. Stokely-VanCamp, Inc., 260 Minn. 315, 109 N.W.2d 749 (1961). An example of concurrent public and private nuisance was given by the Minnesota Supreme Court in Aldrich v. Minneapolis, 52 Minn. 164, 171, 53 N.W. 1072, 1073-74 (1893):

> Take, for example, an establishment erected near a public street, which produces such noxious and offensive smells as to annoy the whole community. To all who come within its reach it is a nuisance because it offends the senses; but, unless they have property or business in the vicinity which is injuriously affected, the injury to them would be one common to the public generally, for which no private action would lie; but those who live in the neighborhood, or who own property there which is impaired in value by reason of the nuisance, may have their private actions, because their damage is special.

31. Long v. Minneapolis, 61 Minn. 46, 63 N.W. 174 (1895).

32. Hill v. Stokely-VanCamp, Inc., 260 Minn. 315, 109 N.W.2d 749 (1961); Robinson v. Westman, 224 Minn. 105, 29 N.W.2d 1 (1947); Lead v. Inch, 116 Minn. 467, 134 N.W. 218 (1912); Viebahn v. Board of Comm'rs, 96 Minn. 276, 104 N.W. 1089 (1905). *See generally* Prosser, *Private Action for Public Nuisance*, 52 Va. L. Rev. 997 (1966).

33. *See* Keeton, *Trespass, Nuisance, and Strict Liability*, 59 Colum. L. Rev. 457 (1959).

34. Prosser, *Nuisance Without Fault*, 20 Texas L. Rev. 399, 426 (1942).

35. It is generally held that a lawful business may never be considered a nuisance per se. Robinson v. Westman, 224 Minn. 105, 29 N.W.2d 1 (1947). *See also* Note, *The Law of Nuisance in Iowa*, 12 Drake L. Rev. 107 (1963); Comment, *Nuisance: a Problem in Oklahoma*, 13 Okla. L. Rev. 224 (1960).

36. W. Prosser, *supra* note 27, § 88.

37. In Lynch v. Shiely, 131 Minn. 346, 348, 155 N.W. 390, 391 (1915)

The *Restatement of Torts* presents another rule for determination of private nuisance liability.[38] It is limited to activity or conduct which is both intentional and unreasonable but also incorporates by reference the normal rules of negligence and ultrahazardous activity.[39] The rule was promulgated in an effort to clear up the confusion in the field of nuisance law, but its strict requirement of intent may preclude rigorous application to normal industry abuse.

C. Minnesota Law

Minnesota has defined a nuisance as essentially anything interfering with the comfortable enjoyment of life or property.[40] Thus, the basis of liability does not rest on either the actor's intent or degree of care[41] but merely on the extent of injury

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the court stated: "We do not care to adopt the doctrine that one conducting a business, not *per se* a nuisance, is liable only upon proof of negligence. The application of such a doctrine would sometimes be disastrous."

38. Restatement of Torts § 822 (1939):

> The actor is liable in an action for damages for a non-trespassory invasion of another's interest in the private use and enjoyment of land if,
>
> (a) the other has property rights and privileges in respect to the use or enjoyment interfered with; and
>
> (b) the invasion is substantial; and
>
> (c) the actor's conduct is a legal cause of the invasion; and
>
> (d) the invasion is either
>
> (i) intentional and unreasonable; or
>
> (ii) unintentional and otherwise actionable under the rules governing liability for negligent, reckless or ultrahazardous conduct.

39. In defining intent, Comment (a) to the Restatement of Torts § 825 (1939) provides:

> It is not enough to make an invasion intentional that the actor realizes or should realize that his conduct involves a serious risk or likelihood of causing such an invasion. He must either act for the purpose of causing it or know that it is resulting or is substantially certain to result from his conduct.

40. Minn. Stat. § 561.01 (1967) provides:

> Anything which is injurious to health, or indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property, is a nuisance. An action may be brought by any person whose property is injuriously affected or whose personal enjoyment is lessened by the nuisance, and by the judgment the nuisance may be enjoined or abated, as well as damages recovered.

41. H. Christianson & Sons v. Duluth, 225 Minn. 475, 31 N.W.2d 270 (1948); Robinson v. Westman, 224 Minn. 105, 29 N.W.2d 1 (1947); Johnson v. City of Fairmont, 188 Minn. 451, 247 N.W. 572 (1933). However, in Power v. Village of Hibbing, 182 Minn. 66, 233 N.W. 597 (1930) the court, in approving Uggla v. Brokaw, 117 App. Div. 586, 102 N.Y.S. 857 (1907) appeared to require negligence as a condition for

to the plaintiff or his property.

If the statute were to be construed exactly as written, however, almost any conduct—no matter how reasonable—could be deemed a nuisance upon the complaint of an overly sensitive neighbor. Therefore, many of the elements normally associated with negligence theory have been required in order to balance conflicting interests in the use of the land. The injury suffered must be a material and substantial[42] interference with comfort as measured by ordinary people—not those of delicate sensitivities.[43] There is no specific requirement that the injury be continuing in nature but such evidence, along with the time and location of occurrences and the degree of annoyance, are controlling considerations for determination of substantial interference.[44]

Moreover, as in the law of negligence, the statute is construed so that the rights of the parties are not absolute but relative. The interests of the plaintiff must be balanced against the right of the defendant to make productive use of his land and thus advance the interests of society in maintaining a healthy economy.[45] The proper test of discomfort is that degree which is "no greater than [that] ordinarily incident to life in many sections of every city."[46] The type of activity that would constitute a nuisance if carried on in a residential area might be perfectly acceptable if located in an area zoned for industrial use.[47] This policy has resulted in industrial areas familiar to

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liability in the absence of an unlawful act. The case is best confined to its facts as an act of God since a rainfall of over three inches in 45 minutes causing a sewer to back up could neither have been contemplated nor could the condition have been corrected.

42. Fish v. Hanna Coal & Ore Corp., 164 F. Supp. 870 (D. Minn. 1958); Excelsior Baking Co. v. City of Northfield, 247 Minn. 387, 77 N.W.2d 188 (1956); Jedneak v. Minneapolis General Elec. Co., 212 Minn. 226, 4 N.W.2d 326 (1942); City of Mankato v. Willard, 13 Minn. 1 (Gil. 1868).

43. In the absence of evidence to the contrary, it is assumed that the complaining parties are of normal sensitivities. Roukovina v. Island Farm Creamery Co., 160 Minn. 335, 200 N.W. 350 (1924).

44. Fish v. Hanna Coal & Ore Corp., 164 F. Supp. 870 (D. Minn. 1958); Matthias v. Minneapolis, St. P. & S.S.M. Ry., 125 Minn. 224, 146 N.W. 353 (1914).

45. Fish v. Hanna Coal & Ore Corp., 164 F. Supp. 870 (D. Minn. 1958); Excelsior Baking Co. v. City of Northfield, 247 Minn. 387, 77 N.W.2d 188 (1956).

46. Brede v. Minnesota Crushed Stone Co., 143 Minn. 374, 382, 173 N.W. 805, 808 (1919).

47. Village of Wadena v. Folkestad, 194 Minn. 146, 260 N.W. 221 (1935); Gunderson v. Anderson, 190 Minn. 245, 251 N.W. 515 (1933); O'Malley v. Macken, 182 Minn. 294, 234 N.W. 323 (1931). *See generally*

every urban complex, where a heavy concentration of noise, smoke and odor combine to make the area unfit for anything but industry. Location in an industrial area will not suffice by itself, however, to justify the maintenance of a nuisance. The particular business may be such that the conditions resulting from the operation cannot be tolerated at any location where it might affect other individuals. Normally, however, to escape liability the industrial defendant must show merely that he is using the methods best calculated to remove the offending conditions.[48]

D. REMEDIES

The proper remedy for nuisance is an injunction, monetary compensation or both.[49] In determining the appropriateness of injunctive relief, the traditional equity considerations control—is there an adequate remedy at law?[50] Will the decree work an undue hardship on the defendant?[51] Is the nuisance a continuing one?[52] The measure of monetary damages is the amount of the reduction in rental value or the diminished value of the use of

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Comment, *Real Property—the Effect of Zoning Ordinances on the Law of Nuisance*, 54 MICH. L. REV. 266 (1955).

48. Fish v. Hanna Coal & Ore Corp., 164 F. Supp. 870 (D. Minn. 1958); Jedneak v. Minneapolis General Elec. Co., 212 Minn. 226, 4 N.W.2d 326 (1942). In *Jedneak*, the court said the standard of substantial interference with plaintiff's enjoyment of life is "whether defendant was doing as much as reasonably was possible in the way of careful operation . . . ." 212 Minn. at 231, 4 N.W.2d at 329 (emphasis added). Though the court expressly stated that a finding of negligence was not necessary, its use of a reasonable standard would imply such a necessity.

49. "[T]he nuisance may be enjoined or abated, as well as damages recovered." MINN. STAT. § 561.01 (1967). MINN. STAT. § 484.03 (1967) provides for the issuance of writs of injunction from district courts "including writs for the abatement of a nuisance."

50. Robinson v. Westman, 224 Minn. 105, 29 N.W.2d 1 (1947); Meagher v. Kessler, 147 Minn. 182, 179 N.W. 732 (1920); Joyce v. Village of Janesville, 132 Minn. 121, 155 N.W. 1067 (1916); Lead v. Inch, 116 Minn. 467, 134 N.W. 218 (1912); Colstrum v. City of Minneapolis & St. L. Ry., 33 Minn. 56, 24 N.W. 255 (1885).

51. Although the doctrine of "comparative injury" was specifically rejected in Brede v. Minnesota Crushed Stone Co., 143 Minn. 374, 173 N.W. 805 (1919), the hardship on defendant is still considered for purposes of determining whether to allow an injunction. Cases cited in note 45, *supra*. However, in Herrmann v. Larson, 214 Minn. 46, 7 N.W.2d 330 (1943), the court held that a denial of an injunction on the grounds of hardship was improper in the absence of a showing that defendant could not abate the nuisance himself except by going out of business.

52. Joyce v. City of Janesville, 132 Minn. 121, 155 N.W. 1067 (1916).

the property.[53] The difficulty of ascertaining the diminished value of the property, however, makes the injunction the only practical remedy.

E. Effect On Air Pollution

Nuisance law has, in the past, often been used to curtail activity fitting within the scope of air pollution regulation. Such pollutants as dust containing lead oxide,[54] dust from the dumpings of iron ore mining,[55] smoke, cinders and ashes from chimneys[56] and offensive odors from animals[57] are typical causes of nuisance litigation. The advantage that the private action offers to air pollution control is the capability of "zeroing in" on obvious polluters without the necessity of awaiting governmental intervention.

The air pollution control statutes are preventive, rather than compensatory or punitive. They are designed to deal with pollution on a mass basis—to protect the general public from the collective effects of society's pollutants. They do not provide compensation for past injury to private citizens nor reparation to the community for damage done in the past. On the other hand, the private nuisance action can single out the worst offenders, require them to pay for prior damage and, under threat of injunction, force the offender to make all reasonable efforts to eradicate the source of the pollution. This course of action could aid state or local agencies by supplying an army of quasi-public "prosecutors" who, through redress of the private wrong, would also aid the whole of society.

The effectiveness of private nuisance law as a means of controlling air pollution is impaired by two considerations. The first is the difficulty of proving the cause of action. The plaintiff must show substantial injury, not mere pique or annoyance, and in an industrial area, where the majority of stationary-source polluters are located, this is often difficult. In addition, a court is

53. Millet v. Minnesota Crushed Stone Co., 145 Minn. 475, 177 N.W. 641 (1920).

54. Heller v. American Range Corp., 182 Minn. 286, 234 N.W. 316 (1931).

55. Fish v. Hanna Coal & Ore Corp., 164 F. Supp. 870 (D. Minn. 1958).

56. State v. Lloyd A. Fry Roofing Co., 280 Minn. 265, 158 N.W.2d 851 (1968); Jedneak v. Minneapolis General Elec. Co., 212 Minn. 226, 4 N.W.2d 326 (1942); State v. Chicago, M. & St. P. Ry., 114 Minn. 122, 130 N.W. 545 (1911).

57. Robinson v. Westman, 224 Minn. 105, 29 N.W.2d 1 (1947).

not confronted by all the parties in interest. The litigants are generally a business entity and a private citizen, or at most, a group of private citizens. The court is asked to balance the economic loss to the business in the event of an injunction against what the court might feel is merely someone's disgust with her grey petunias. A pollution control agency, on the other hand, is designated as the representative of all the citizens. Its arguments regarding health effects, environmental destruction and economic waste would prove to be more effective than any individual's could be.

Nuisance litigation concerning air pollutants will also generally prove costly to prospective plaintiffs. Sampling and testing procedures, expert testimony and marshalling a parade of neighbors to testify on the effects of the nuisance all cost money and it is questionable—in view of the generally limited monetary awards—how many private citizens are willing to undergo litigation. A few of the ways to alleviate this burden of expense are the loan of testing equipment and state agency personnel to prospective plaintiffs and the formation of citizens' groups to share the expense of litigation.[58]

A second impairment to the effectiveness of nuisance law in regulating air pollution is the traditional reluctance of equity to grant injunctions. While the plaintiff might be made whole by the award of damages, his neighbor and the community in general will not be so benefited. The pollution may be sufficently dispersed to allow few private actions while greatly contributing to the overall level of pollution. In the absence of a threat of injunction, the industrialist may prefer to absorb compensatory awards in his cost of doing business rather than eradicate the source of the pollution.[59] The injunction process eliminates this choice of "paying while polluting" and—even though a temporary shut down might result in economic loss to society—it is the only effective deterrent offered by private litigation to the fight against air pollution.

58. *See, e.g.*, Anderson v. American Smelting & Refining Co., 265 F. 928 (D. Utah 1919) where 61 farmers joined in an action for crop damage.

59. The Oregon Supreme Court may have struck on a reasonable middle ground in McElwain v. Georgia-Pacific Corp., 83 Ore. 707, 421 P.2d 957 (1966) in allowing punitive damages in a nuisance action. The case is noted in 46 ORE. L. REV. 472 (1967).

III. AIR QUALITY ACT OF 1967

A. PURPOSE

The stated purposes of the Air Quality Act are:

> (1) to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population;
> (2) to initiate and accelerate a national research and development program to achieve the prevention and control of air pollution;
> (3) to provide technical and financial assistance to State and local governments in connection with the development and execution of their air pollution prevention and control programs; and
> (4) to encourage and assist the development and operation of regional air pollution control programs.[60]

These purposes are to be accomplished, as much as possible, by state and local initiative with only technical and financial assistance available from the federal government.

B. STATE-FEDERAL COOPERATION

To insure the proper flow of information from the federal government to the state, the Secretary of Health, Education and Welfare (hereinafter called the Secretary) is authorized to designate atmospheric areas, mainly on the basis of climate, meteorology and topography, and air quality control regions, on the basis of "jurisdictional boundaries, urban-industrial concentrations and other factors . . . ."[61] The atmospheric areas were designed to define regions where the dispersion characteristics of the atmosphere are roughly equivalent, thus facilitating joint research among states within the area. The air quality control regions were designed to enable smaller jurisdictions—cities, counties and occasionally states—lying within the same urban area to facilitate joint research, regulation and enforcement of air pollution programs.

The bulk of Minnesota is located in the Great Plains atmospheric area with the northeast corner located in the Great Lakes-Northeast atmospheric area.[62] The Minneapolis-St. Paul

60. Air Quality Act, *supra* note 23, § 101(b), 42 U.S.C. § 1857(b).
61. *Id.* § 107(a)(2), 42 U.S.C. § 1857C-2(a)(2).
62. The Continental Atmospheric Areas were designated in 33 Fed. Reg. 548 (1968) to be the California-Oregon Coastal, Washington Coastal, Rocky Mountain, Great Plains, Great Lakes-Northeast, Appalachian, Mid-Atlantic Coastal and South Florida Areas. The noncontinental Areas were designated in 33 Fed. Reg. 16537 (1968) to be the Hawaiian-Pacific, Alaskan Pacific Maritime, Alaskan Bering Mari-

metropolitan area is an air quality control region.[63] The Secretary is also authorized to "develop and issue to the States such criteria of air quality [that are] requisite for the protection of the public health and welfare"[64] and to furnish information and recommendations on control techniques based on the latest available information.

After receiving air quality criteria from the Secretary, the state has 90 days to file a letter of intent that it will, within 180 days, adopt a plan for the formulation of pollution standards *at least*[65] as stringent as necessary to conform to the criteria issued by the Secretary. Thereafter, the state shall have an additional 180 days to adopt a plan for the "implementation, maintenance and enforcement" of ambient air quality standards.[66]

If the state fails to adopt adequate standards, the Secretary may give notice and opportunity for hearing to the appropriate agencies, publish recommended standards and, if six months elapse without state action, promulgate such standards. The Act also contains provisions for dealing with proposed revisions, state-federal disputes and state refusal to enforce the standards.[67]

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time, Alaskan Artic Maritime, Alaskan Continental and Southern Florida-Caribbean Areas.

The meteorological and topographical characteristics of the areas containing Minnesota are as follows: Great Plains area—Relatively flat terrain, which stretches from the Canadian border to the Gulf of Mexico, characterizes the topography. The dilution climate is characterized by negligible persistent atmospheric stagnation and the frequent occurrence of relatively high winds with rapidly changing meteorological conditions.

Great Lakes-Northeast area—The meteorology is characterized by frequent storm passages with attendant high winds and generally good dilution conditions. During the spring and early summer months, winds blowing from over the cold waters of the Great Lakes and Atlantic Ocean enhance low-level stability in regions adjacent to these bodies of water.

63. There may be as many as 100 air quality control regions designated by the cut-off date in July 1970. 2 ENVIRON. SCI. & TECHNOLOGY 7 (1968).

64. Air Quality Act, *supra* note 23, § 107(b)(1), 42 U.S.C. § 1857c-2(b)(1).

65. Nothing in the Act bars a state from enacting standards more stringent than necessary to meet the Secretary's criteria.

66. Air Quality Act, *supra* note 23, § 108(c)(1), 42 U.S.C. § 1857(c)(1).

67. *Id.* § 108(c)(2)-(4), 42 U.S.C. § 1857d(c)(2)-(4). One of the omissions in the Act is the inability of the Secretary to interfere where the state is declining to enforce the standards against an intrastate source. The Secretary may enter only the governor's request unless the effects of the pollution affect persons outside the source state. *Compare* § 108(c)(4)(i), *with* (ii).

C. FUNDING PROVISIONS

To further encourage state-federal cooperation, various funding provisions are available under the Act. Apart from access to federal research[68] and specific grants to private or public institutions for research and development concerning new fuels,[69] the Act provides for the following grants:[70] (1) two-thirds of the cost of establishing or improving air pollution control agencies; (2) one-half the cost of maintaining an adequate program; and (3) three-fourths of the cost of establishing or improving, and three-fifths of the cost of maintaining, a qualifying[71] regional air quality control program. All of the above funds, however, are conditioned upon the state's expending more nonfederal money on the agency than it had in the year immediately preceding.[72]

D. MOTOR VEHICLE EMISSIONS STANDARDS

The only portion of the Act for which the federal government is to have primary responsibility is the motor vehicle section—the National Emissions Standards Act.[73] The Act authorizes the Secretary to promulgate standards for motor vehicle exhaust emission and denies all states, with the exception of California, the right to formulate their own standards.[74]

This section will likely prove to be the most effective long-range provision of the Act. Motor vehicle emissions now account for approximately 60 percent of the air pollutants in the nation[75] and with increasing pressure on industry to reduce its output of pollutants this figure will undoubtedly rise. It is now estimated that 90 percent of the air pollution in Los Angeles County results from automobile emissions.[76] This is due to both the tre-

68. *Id.* §§ 103-04, 42 U.S.C. § 1857b & b-1.

69. *Id.* § 104(a), 42 U.S.C. § 1857 b-1(a) ($1.5 million limit on any single grant).

70. *Id.* § 105(a)(1), 42 U.S.C. § 1857 c(a)(1).

71. *See id.* § 105, 42 U.S.C. § 1857 h(b)(2) & (4).

72. Air Quality Act, *supra* note 23, § 105(b), 42 U.S.C. § 1857(b). The amount shall exclude nonrecurrent expenditures.

73. *Id.* §§ 201-12, 42 U.S.C. § 1857(f) (1-7).

74. *Id.* § 208(b), 42 U.S.C. § 1957-f-6a(b). The section is not phrased in terms of excepting California. Rather it allows states that had adopted equally strict standards prior to Mar. 30, 1966, to waive the federal standards. California, with more stringent standards, was the only state so qualifying. *See* CALIFORNIA AIR RESOURCES BOARD BULL., No. 13 (1969).

75. *Air Pollution and the Ubiquitous Auto*, 1 ENVIRON. SCI. & TECHNOLOGY 878 (1967).

76. Los Angeles Times, July 23, 1969, § II, at 5, col. 4.

mendous number of automobiles in the county[77] and the strict regulation of stationary source pollution.[78]

Federal regulation has been necessitated by the reluctance of the automobile manufacturers to independently reduce automobile emissions. This reluctance is illustrated by a record of correspondence between the manufacturers and a supervisor of the Los Angeles County Air Pollution Control District, dating back to 1953.[79] The unsuccessful efforts of Los Angeles to solicit cooperation from Detroit have resulted in the Justice Department filing a civil antitrust suit against the major automobile companies for conspiring to delay the development of and use of air pollution control devices.[80]

The federal emission standards are phrased in terms of allowing a maximum number of parts per million of hydrocarbons and carbon monoxide to be emitted.[81] At present, the Secretary has not announced any program of increasingly strin-

77. Los Angeles County has 3.95 million gasoline-powered vehicles registered. PROFILE OF AIR POLLUTION CONTROL IN LOS ANGELES COUNTY 2 (1969) [hereinafter cited as PROFILE].

78. The Los Angeles County Air Pollution Control District (LAAPCD) prevents the emission from stationary sources of more than 6,000 tons of pollutants daily, allowing less than 1,300 tons. PROFILE, *supra* note 77, at 4-5. Their stationary source program, the most effective APCD in the world, is still unable to solve the air pollution problem. Mr. John C. Raymond, engineer for the State of California Air Resources Board, estimated that it will take more than 15 years for stringent emission standards to substantially reduce smog in Los Angeles. *See* interview, note 83 *infra*.

79. A FACTUAL RECORD OF CORRESPONDENCE BETWEEN KENNETH HAHN, LOS ANGELES COUNTY SUPERVISOR, AND THE PRESIDENTS OF GENERAL MOTORS, FORD AND CHRYSLER REGARDING THE AUTOMOBILE INDUSTRY'S OBLIGATION TO MEET ITS RIGHTFUL RESPONSIBILITY IN CONTROLLING AIR POLLUTION FROM AUTOMOBILES (1968). [hereinafter cited as RECORD].

An indication of the cooperation received from the industry is evident in two replies to Mr. Hahn's first letter, requesting information on the industry's research to date. The Ford Motor Company replied that "although mindful that automobile engines produce exhaust gases, [we feel] these waste vapors are dissipated in the atmosphere quickly and do not present an air pollution problem." Letter from Dan J. Chabek of Ford's News Department to Kenneth Hahn, Mar. 3, 1953, in RECORD, *supra*, at 4. General Motors was kind enough to admit that "fuel mixtures used in internal-combustion engines undergo combustion along well-recognized chemical and physical lines and result in exhaust products, depending on the combustion processes." Letter from L. A. Danse of General Motors to Mr. Hahn, Mar. 20, 1953, in RECORD, *supra*, at 5.

80. This suit was dropped after the negotiation of a consent decree.

81. New York Times, Feb. 11, 1969, at 31, col. 2. The California standards are phrased to allow so many parts per mile to be emitted. CAL. HEALTH AND SAFETY CODE §§ 39101-107 (West 1967).

gent standards, as has California.[82] The automobile manufacturers feel that they will be able to comply with the federal regulations but that they cannot meet the California standards beyond 1972.[83]

The success of the program will depend in large part on the ability to develop effective emission control devices. California's experience has shown the devices on the 1966 and 1967 cars lose their effectivness after approximately 4,000 miles (hydrocarbon standard exceeded) and 6,000 miles (carbon monoxide standard exceeded) while the effectiveness of the devices on the 1968 cars has increased to 8,000 miles and 16,000 miles respectively.[84] Since the regulations apply to the manufacture of automobiles, enforcement of the program should not be too difficult. Spot checks could then result in citations for dismantling any device or warnings for delay in repairing broken devices.

The federal program is much less restrictive than that of California, and perhaps with reason. The rest of the nation has not experienced Los Angeles' trouble with the auto and perhaps the automobile manufacturers have been more convincing in their presentations to Washington than to Sacramento. California has shown that effective standards do lower emissions[85]

82. AIR POLLUTION CONTROL IN CALIFORNIA 27 (1969). California's program calls for control of evaporative losses in 1970, oxides of nitrogen in 1971 and increasingly stringent control of hydrocarbons and oxides of nitrogen through 1974. CALIFORNIA AIR RESOURCES BOARD ANNUAL REP. (1968).

83. Interview with Mr. John C. Raymond, engineer for the State of California Air Resources Board in Los Angeles, July 25, 1969. The attitude of the state appears to be opposed to further compromise with Detroit. The State Senate passed a bill that would ban the sale of motor vehicles powered by internal-combustion engines after Jan. 1, 1975. Los Angeles Times, July 26, 1969, § II, col. 6.

The bill appeared to be a reaction to the news from Detroit that it could not meet California's standards rather than a serious attempt to ban the current automobile, as is evidenced by the later withdrawal of the bill.

84. PROFILE, *supra* note 77, at 35.

85. When the California Emission Control Program was instituted in 1966, automobile emissions in Los Angeles County were at a level of 10,655 tons per day. In 1969, the level was at 9,810 tons per day. With no control program, it is estimated that the figure for 1969 would have been 11,953 tons per day. The projected figures in tons per day for succeeding years are as follows:

Year	Oxides of Nitrogen	Carbon Monoxide	Sulphur Dioxide	Totals No Controls	Controls
1970	730	8,485	43	12,300	9,258
1975	610	5,485	40	13,300	6,135
1980	385	4,080	41	14,500	4,506
1985	265	3,940	43	15,700	4,248
1990	260	4,315	47	17,200	4,622

and any future solution must come from the scientists and engineers. Past experience has shown, however, that Detroit will not move ahead on its own. The federal government must therefore increasingly raise the emission standards to force technological compliance.

E. Effects of the Air Quality Act

The Air Quality Act should provide recalcitrant states with the impetus needed to formulate and adopt effective pollution control agencies. An allocation of 303.3 million dollars for a three-year period[86] will enable states to act without intolerable expense. The centralization of research and development, together with state standards based on federal criteria, should allow sufficient flexibility of regulation without duplicating research costs. The key to the effectiveness of the federal program combating stationary-source pollution may lie in its ability to develop adequate control provisions to enable states to regulate industrial pollution, without increasing polluters' costs to the extent that they are forced to curtail business.

Much more important than the impetus provided for stationary-source control, however, is the federal regulation of motor vehicles. If a graduated program for controlling emissions is instituted, many of the long-range problems of air pollution control can be solved on a nationwide basis. Federal control should also prove advantageous to manufacturers. They will then have to comply with only two standards—federal and California—instead of the myriad that independent state action would produce. If the projected results in California are any indication, motor vehicle emissions should be reduced by approximately 30 percent in 1975 and 50 percent in 1980.[87] This would result in a reduction of pollution from all sources—assuming stationary-source pollution remains constant—by 18 percent and 30 percent, respectively.

IV. MINNESOTA POLLUTION CONTROL AGENCY

A. Formation, Composition and Short-Term Objectives

The Minnesota Pollution Control Agency (hereinafter called the Agency) was formed in 1967 to achieve a "reasonable degree

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Profile, *supra* note 77, at 38-44.

86. Air Quality Act, *supra* note 23, § 309, 42 U.S.C. 1857*l*.

87. *See* note 85 *supra*.

of purity of water and air resources."[88] The Agency succeeded the Water Pollution Control Commission and consists of seven members appointed by the Governor with the consent of the senate. At present, the Agency is divided into air and water divisions, each with its own director reporting to the Agency Director.

The director of the air quality division of the Agency presently has a staff of only nine full time professional employees divided into two sections. One section is devoted to formulating air quality standards, conducting surveys and enforcement while the other is devoted to monitoring and analyzing the current status of Minnesota air. The director had requested the legislature to provide nine additional full time employees plus funds for the use of a pool of consultants.[89] Thus, his manpower supply is about half of what he estimated would be necessary to form an effective organization.[90]

The legislature has demonstrated an equal reluctance to supply the Agency with funds sufficient to purchase adequate pollution control equipment. The Agency would like to equip two mobile trailer units with air quality detection and measuring devices to monitor air quality in various areas of the state.[91] Unfortunately, these units costs between $55,000 and $60,000 each and the legislature has appropriated only $44,380 for the purchase of new equipment in 1970 and 1971.[92]

The cities of Los Angeles and Chicago offer a contrast in the amount of equipment and manpower allocated to air pollution control. The Los Angeles County Air Pollution Control District employs a total of 302 full time professionals and has

88. MINN. STAT. § 116.01 (1967).

89. Interview with Mr. Edward Wiik, director of the air quality division of the Minnesota Pollution Control Agency, in Minneapolis, May 9, 1969.

90. *Id.*

91. *Id.*

92. BUDGET PROPOSAL FOR THE MINNESOTA POLLUTION CONTROL AGENCY (Jan. 1969). The budget proposal breaks down as follows with requested sums in parenthesis:

Year	Supplies	New Equipment	Salaries & Administration	Total
1970	$4,113	$25,100	$165,000	$195,000
	(10,350)	(73,713)	(215,000)	(300,000)
1971	6,565	18,280	176,000	200,880
	(15,500)	(85,814)	(250,000)	(350,000)

Grants from the federal government, pursuant to § 4 of the Clean Air Act of 1967 total $49,181 for 1967-68, $77,523 for 1968-69, $130,000 for 1969-70 and $133,920 for 1970-71.

an annual budget of $4,850,000.[93] The city of Chicago employs 200 professionals and owns air pollution control equipment worth more than three million dollars.[94]

The immediate objective of the Agency was threefold—to determine the present condition of Minnesota air, to adopt air quality standards conducive to normal living conditions and to adopt control regulations to assure pollution levels below the air quality standards.[95]

B. Determination of the Present Condition of Minnesota Air

To determine the present condition of Minnesota air, a sampling program was undertaken through Professor Harold J. Paulaus of the University of Minnesota. The state was divided into two regions, metropolitan[96] and outstate. This six-month program, together with prior studies by the cities of Minneapolis and St. Paul and by the United States Public Health Service, resulted in enough information to provide a tentative basis for setting control regulations until further, more detailed sampling can be undertaken.[97]

Other factors such as topography, meteorology and population had to be considered before control standards could be set. Minnesota's terrain and weather are generally considered to be excellent for the dispersion of air pollutants. The state lacks the rugged terrain that reduces air circulation and thus prevents effective dispersal. The average wind velocity is also fairly high, and, in the absence of temperature inversions,[98] will further has-

93. Interview, *supra* note 83. The County does generate approximately $1.3 million of revenue from permit fees, however, so the net cost is closer to $3.5 million.

94. Interview, *supra* note 89.

95. H. Paulus, Statewide Study of Air Pollution for the Minnesota Pollution Control Agency (1969) [hereinafter cited as Study].

96. The metropolitan region consists of Anoka, Carver, Dakota, Hennepin, Ramsey, Scott and Washington counties.

97. Fifty-two sampling stations were established in the metropolitan region, with dustfall jars and lead peroxide plates collected every two weeks. Every effort was made to eliminate inordinate amounts of pollution from purely local sources. Twenty four sampling stations were established in the outstate region. High volume air samplers and filter tape smoke samplers were rotated at each station so that each city was sampled for three two-week periods, separated by two-month intervals. Study, *supra* note 95, at 3-8.

98. Temperature inversions occur fairly frequently in the metropolitan region. A device placed atop the KSTP television tower recorded inversions on 50 percent of the days for an average duration of seven hours during the months of October, November and December, 1968. Study, *supra* note 95, at 19.

ten dispersion. The metropolitan area—the major population center of the state—has a high concentration of automobile traffic and industry in a relatively small area, which necessitates enforcement of more stringent standards than for the outstate regions.

C. Air Quality Standards and Regulations

Minnesota's air pollution control program is similar to that of all states and is consistent with the recommendations of the federal government.[99] It is essentially a two-step program. The first step is the formulation of air quality standards that define the amounts of the various chemicals and particulates that can remain in the air without appreciable effect on health. When these standards are set, regulations are formulated to control the emission of pollutants so that their level will remain below the maximum allowed by the standards. The existing level of air pollution, topography, meteorology and population determine how stringent the regulations must be to insure compliance with the standards.

The Air Quality Act requires the states to set standards at least as stringent as those required by the Secretary.[100] Although the federal government has not yet issued comprehensive air quality criteria, there is no question but that Minnesota's standards will be sufficiently stringent to so qualify.[101] At present, the Agency does not plan different standards for commercial, industrial and residential areas but other states have[102] —thus allowing varying amounts of air pollution for lands with different uses. The only concession to locality in the regulations is that some differentiate depending on whether the source is within or without the metropolitan region. Regulations for emissions from fuel burning equipment[103] are more stringent

99. Air Quality Act, *supra* note 23, § 107(b), 42 U.S.C. § 1857c-2(a)(2).

100. *Id.* § 108(c)(1), 42 U.S.C. § 1857d(c)(1).

101. Interview, *supra* note 89. Minnesota's Air Quality Standards were formally adopted May 12, 1969. Minneapolis Tribune, May 22, 1969, at 2, col. 8.

102. New York and Texas have decreasingly tolerant standards for areas designated industrial, commercial, residential and agricultural. Montana has a statewide standard for sulfur compounds and separate standards for suspended particulates based upon industrial or residential location. Paper, *Comparison of Air Quality Standards*, presented at a meeting of the California Air Resources Board, San Diego, California on June 18, 1968, 5-7.

103. Minnesota Pollution Control Agency, Air Pollution Control

for installations within the metropolitan region, to compensate for the higher number of heating plants in the Twin City area. Perhaps the reason for the difference in this area is twofold. First, the regulation deals with total particulate emissions, such as dustfall, the most visible of all contaminants; and second, dustfall emissions may be restricted by the least expensive of all control methods.[104] Since it can be done quite cheaply, and since the aggregate visible effects of a concentration of heating plants is undesirable, the political pressure of metropolitan business was probably not too severe.

Some of the regulations also differentiate between existing and future installations—allowing more emissions for the former than for the latter. This alleviates the burden of requiring all businesses to immediately modify existing plants, a burden increased by the fact that the cost of building control equipment into plants is less than that of adding it, and many old facilities could not bear the expense of complete renovation. To help speed the deployment of control equipment, however, an "existing" facility is defined to exclude any in which a modification or repair thereto costs more than 30 percent of its replacement cost, provided the "new" facility constitutes a greater source of air pollution.[105] This last proviso is unfortunate. Since the distinction between "existing" and "new" facilities is made because of installation costs, a substantial renovation should be more analogous to rebuilding than to a mere addition and the more stringent regulations should apply. The ideal solution would be to tie the determination of "new" or "existing" into the permit system and allow the inspectors to exercise their discretion in determining whether the burden of adding complete control equipment would be prohibitively expensive. The question to be answered should be whether the renovation is such that the addition of control equipment could be accomplished at the same cost as building such equipment into a new installation. Since Agency approval of any alteration to a process is already necessary,[106] this additional determination would not require much more manpower and the transitional process would be shortened.

Most of the regulations are to be in force statewide at all

Regulations 4(B) & (C) (Particulate matter from fuel burning equipment used for indirect heating) [hereinafter cited as APC Reg.].

104. AIR POLLUTION CONTROL DISTRICT-COUNTY OF LOS ANGELES, AIR POLLUTION ENGINEERING IN LOS ANGELES COUNTY (1966).

105. APC Reg., *supra* note 103, 2(A)(3) (Definitions).

106. *Id.* 3(A)(1) (Plan approval and permit issuance).

times, with only temporary exceptions for problems such as control equipment breakdowns.[107] However, the regulation dealing with the emission of sulfur dioxide[108]—produced by the burning of coal and fuel oil with a high sulphur content—applies only to the metropolitan area and only at certain times. The air quality standard for sulfur dioxide[109] allows a maximum 24-hour average of 0.1 parts of sulfur dioxide per million parts of air. Whenever this standard is exceeded for a twelve-hour period, and it appears that low wind, temperature inversions or other factors hampering dispersion will continue for an additional twelve hours, an "air pollution alert"[110] will be declared at which time users must switch to a fuel of lower sulfur content until conditions are such that the "alert" may be called off. This regulation offers an excellent example of the compromises necessary to enact an air pollution control scheme. If natural gas were used instead of fuel oil or coal, 85 percent of the pollution from fuel burning installations could be eliminated,[111] but because of the limited supply, the use of higher sulfur content fuels is necessary. And, because of the additional costs of the low sulfur content fuels, they are only required *after* the standards have been exceeded.[112]

If the present air quality standards are to be maintained, this "alert" may shortly become meaningless, especially during the winter months when fuel oil is used for heat as well as power generation. At that time, the regulations should be altered to offer the source a choice of the least expensive method of reducing sulfur dioxide emissions. He should be able to determine whether it would be cheaper to use low sulfur content

107. *Id.* 5(B)(3)(c) (Particulate matter from industrial processes).
108. *Id.* 15 (Sulfur dioxide from use of fuel in the Minneapolis-St. Paul metropolitan region).
109. *Id.* 1(1) (Ambient air quality standards).
110. This type of "alert" is not to be confused with that of Los Angeles'. There, three stages of "alerts" call for preventive action on many fronts, such as a prohibition against any open fires, public requests for "car-pooling", etc. It is interesting to note that during such alerts, parents are advised to keep their younger children from engaging in any strenuous activity, due to harmful effects on health. Los Angeles Air Pollution Control District Rules and Regulations, ch. VIII, (1968).
111. The complete use of natural gas in the County would reduce the pollution from 935 tons of sulfur dioxide per day to 200 tons. AIR POLLUTION CONTROL DISTRICT-COUNTY OF LOS ANGELES, *supra* note 104, at 34.

fuels or to burn present fuels and trap the emissions with control equipment.

Any lengthy delay in the formulation of regulations to permanently control the emission of sulfur dioxide could have a substantially adverse effect on the ability of the Agency to do so subsequently. If the visible effects of air pollution were removed, much of the public outcry that is presently spurring pollution controls would correspondingly decrease. Conservationists are fighting an uphill battle as is, and so far, their only effective argument to legislatures has been the public's increasing indignation over the air we breathe. If this concern wanes, the Agency will be hard pressed to successfully argue that stringent controls are necessary to prevent chemical compound emissions. Yet it is this matter—undetectable upon visual inspection[113]—that causes much of the eye irritation, respiratory problems and economic waste associated with air pollution. It would be unfortunate if a program to remove particulate matter proved so successful that regulations for the prevention of more harmful pollutants were ignored.

D. Enforcement

The key to the effectiveness of an air pollution program—given a fairly adequate set of standards and regulations—is the ability to monitor the source and detect violations. In this area the Minnesota program, although admittedly in its infancy, is most inadequate. Data made available by the state-wide sampling program shows that the air in parts of the metropolitan region is already polluted beyond the standards promulgated by the Agency.[114]

The Agency proposes to enforce the regulations through the maintenance of a permit system.[115] This system will require the

113. Especially since the high wind, good atmospheric mix and low concentration of oxides of nitrogen contribute to very light photochemical smog in Minnesota.

114. Some of the standards exceeded in various parts of the metropolitan area are as follows: (figures in parentheses represent actual pollution) sulphur oxides, .25 millimeters/100 square centimeters/day (.45 millimeters); suspended particulates, 75 micrograms/cubic meter of air (80-120 micrograms); and dustfall, 15 tons/square mile in residential areas (20 tons). Minneapolis Tribune, May 22, 1969, at 2, col. 8.

The figures for sulphur oxides are particularly disturbing since they are a by-product of the combustion of coal and heavy fuel oil. The sampling that resulted in these findings was performed in late spring when the burning of fuel oil for heating is diminished.

115. APC Reg. 3, *supra* note 103. (Plan approval and permit issuance).

approval by the Agency of any major[116] installation or renovation of an existing process which may be a source of air pollution. Since "existing" installations are defined to exclude any process or equipment which is repaired for 30 percent or more of its replacement cost,[117] it is hoped that all major stationary sources of air pollution will eventually be required to obtain permits. There is no requirement, however, that existing facilities or processes obtain a permit. While existing operations must comply with the Regulations within six months from their effective date,[118] no provision assures such compliance, other than the penalties provided for noncompliance.

The goal of any air pollution control program is to reach a stage of "self-policing" wherein the sources will monitor their own emissions and use available technological devices enabling them to comply with governmental regulations. Unfortunately, before such a stage is attained, industry must be supplied with motivation other than the thought of clean air. This can be accomplished only by the threat of a stiff penalty for noncompliance. The Agency is equipped with neither the manpower[119] to discover violators nor a penalty severe enough to lessen the risk of noncompliance.[120]

Primary responsibility for enforcement is intended to be vested in local agencies, but since none are in existence, this responsibility will fall on persons with little or no expertise in dealing with air pollution. Enforcement by nonspecialists is undesirable for two reasons—the likely tendency to place a low priority on violations and the additional time and expense consumed by inefficient proceedings. A serious consequence of this

116. *Id.* 3(A)(6) exempts, among others, fuel burning installations with an input capacity of less than one million BTU per hour or those burning only natural gas or high quality fuel oil.

117. *Id.* 2(A)(3).

118. *Id.* 3(D)(2). The person responsible for the installation may obtain an additional three years with which to comply if he submits an acceptable program of compliance to the Agency.

119. Los Angeles County has devoted a third of its staff of 300 to enforcement of its regulations. Every stationary source is visited at least once a month by a qualified technician. The date of the visit is selected by a computer program so as to occur at random. Interview, *supra* note 83.

The Agency, in contrast, has four specialists in enforcement plus the assistance of one attorney from the state Attorney General's Office. BUDGET PROPOSAL FOR THE MINNESOTA POLLUTION CONTROL AGENCY (Jan. 1969).

120. A proposal to raise the maximum fine for a violation from $100 to $1,000 was defeated in committees. Minneapolis Tribune, May 22, 1969, at 1, col. 8.

low priority, apart from a lack of response to citizens' complaints, would likely be a failure to seek out violations. The collective effect of many borderline violations may well be as great as that of one source with no control whatsoever, but the former will go uncorrected in the absence of zealous prosecutors. The second disadvantage of nonspecialists is intertwined with the ultimate goal of air pollution control. That goal is to obtain clean air through the use of improved technology. Punitive action is merely a method of requiring the employment of that technology and is not an end in itself. The person responsible for enforcement should be ultimately concerned with compliance and not convictions. To further this goal, he should be well versed in new techniques for the control of emissions and the difficulties and expense involved in their adoption. The expert would be able to make a reasoned evaluation of the good faith efforts of the individual to comply, and thus determine if punitive action would expedite compliance.

A violation of the regulations is classified as a misdemeanor and is punishable by a fine of $100 *or* imprisonment for no longer than 90 days.[121] If the deterrent theory of punishment has retained any validity, this is analogous to the forfeiture of one peppercorn upon burning down the law library. If that is all it would cost, who would not be tempted? Industry in Los Angeles County spends more than 25 percent of its basic production costs on air pollution control equipment.[122] This is estimated to have accounted for more than one billion dollars during the last two decades.[123] At the present Minnesota penalty of $100 per day, however, the cost to a pollutor would only run between $24,100 and $36,500 per year—far less than 25 percent of the production costs of many manufacturers. Moreover, if the imposition of a jail sentence is as improbable as has been the case in other areas of corporate management—notably anti-trust violations—the misdemeanor penalty will have no deterrent effect.

Fortunately, the legislature also deemed a violation of the regulations to be a public nuisance.[124] This will allow the prosecuting official to bring suit to abate the nuisance[125] and

121. MINN. STAT. § 116.08(1) (1967).

122. AIR POLLUTION CONTROL DISTRICT-COUNTY OF LOS ANGELES, *supra* note 104, at 1.

123. *Id.* Southern California Edison Company spent more than one million dollars for a control device found to be *unsatisfactory*!

124. MINN. STAT. § 116.08(2) (1967).

125. State v. Red Owl Stores, Inc., 262 Minn. 31, 115 N.W.2d 643 (1962), noted in 47 MINN. L. REV. 310 (1962); State v. Red Owl Stores,

thus provide the Agency and its allies with an effective tool for enforcement. While the entity may be able to absorb $100 per day in its costs of doing business and hope its management can avoid imprisonment, it cannot afford to be shut down.

V. CONCLUSION

Air pollution is a threat to the health and welfare of all of our citizens. The State of Minnesota, along with most of the rest of the country, has been content to wait until the problem appeared insoluble before taking action. Now, however, the Air Quality Act of 1967 has provided an excellent opportunity to eradicate air pollution problems throughout the nation. By preempting the states from regulating automobile emissions, the federal government has undertaken to control the major source of air pollution and enabled the states to concentrate on stationary sources.

The desired result is to facilitate cooperation between the Pollution Control Agency and private industry. Many of the research costs of air pollution control have already been borne by California, especially Los Angeles, and continuing research will be largely carried out through facets of the federal program. This accumulation of technological information can provide Minnesota industry with knowledge of control devices at a relatively low cost. The initial emphasis of the Agency should be placed upon dissemination of that information.

The state should not, however, assume automatic compliance with its regulations. Larger sums must be appropriated on the state and municipal levels for effective enforcement. The sooner the fact is made clear that violations will not be tolerated and that the cost of noncompliance will exceed the cost of adequate control equipment, the sooner the state will be able to enjoy clean air at a minimal burden to the taxpayer.

Inc., 253 Minn. 236, 93 N.W.2d 103 (1958); State *ex rel.* Goff v. O'Neil, 205 Minn. 366, 286 N.W. 316 (1939).